Dynamics of Novel Thermal Differentiation of U-235-U-238 Described in 25 March 2024

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Introduction

The method described in 25 March 2024 for separating uranium from earthen material and other contaminants does not address the specific dynamics of U-235 and U-238, which is almost universally collocated in deposits and must be separated. While both U-235 and U-238 would be asymmetrically heated under the circumstance of being electrified while in a high magnetic field (with relation to other contaminants,) U-235 and U-238 would be heated to similar extents.

Abstract

U-235, of course, is useful for the construction of atomic weapons because its instability allows it to be fissioned through neutron flux, leading to the generation of more neutrons in support of a chain reaction. U-235's instability results in a faster rate of decay which, according to present doctrine, should make U-235 "warmer" than U-238. This, however, only takes into account decay-related heating.

Coulomb-related attraction between nucleus and electron cloud (significant only in very heavy elements) is the basis of *gravitational cooling* (a fourth, undiscovered form of heat dissipation mentioned repeatedly in my previous work) and is actually responsible for much of the "warmth" of uranium. Under the circumstance of being exposed to an intense magnetic field and having electrical current passed through it, uranium can be heated asymmetrically with respect to other materials. Although U-238 does not get as "hot" under ordinary circumstances as U-235, under the special aforementioned conditions, U-238, with its additional proton and neutrons, could be expected to; as a result of enhanced nucleus-cloud attraction; to experience greater heating than does U-235 by the magneto-electrical enhanced attraction.

This means that if the usual mixture of U-235 and U-238 found in natural deposits of uranium were to be exposed to the same magneto-electrical effects, the U-238 would be heated slightly more than the U-235. Provided that a primary uranium-other separation step driven by the same process has already been completed and that a body consisting primarily of uranium of any isotope has been isolated, a second step may be initiated which serves to separate U-235 from U-238.

In that second step, U-238 is brought to the melting point and is allowed to drip through a sluice mechanism into a collection pan for removal. The coveted U-235 would remain at a slightly lower temperature and could be expected to

remain solid. As it would (barely) remain as a solid, it would be effectively separated from the overall mass and could be retained for later use.

Conclusion

As this mechanism does not require centrifuges and does not require nearly the amount of time or costly equipment associated with centrifugal separation of U-235 and U-238, it is a far more logical approach to achieving this goal than the centrifugal method. This is a good example of how correcting flawed assumptions about thermodynamics which have long been accepted as "safe assumptions" can unlock new areas of research. While centrifuges are heavily regulated, electromagnets are easier to obtain, less costly to operate even when considering the active cooling requirement and more difficult for interlopers to sabotage. The availability of this new method of enrichment will likely frustrate ongoing anti-proliferation efforts being made by certain entities.